

In the April 24, 2006 Official Action, the Examiner states that "Applicant failed to show how to achieve a polymer having amorphous and crystalline region from a conjugated diene forming an elastomer and a rubber. (sic) The specification does not show the instantly claimed method." It is expected that the Examiner will revert to the same references cited in the prior actions in this application.

Previously, the Examiner rejected claims under 35 U.S.C. §102(b) as anticipated by or in the alternative 35 U.S.C. §103(a) as obvious over Han (US 5,171,478).

Applicants respectfully submit that it is improper to be rejecting a claim under 35 U.S.C. §103(a) based upon "inherency" such as the Examiner has consistently done in his rejections in this case. The Court of Appeals for the Federal Circuit has clearly stated the standard which applies to the examination of applications for Letters Patent in holding: "[A] retrospective view of inherency is not a substitute for some teaching or suggestion which supports the selection and use of the various elements in the particular claimed combination." *In re Newell*, 897 F.2d 899 13 USPQ2d 1056 (Fed. Cir. 1990).

Han discloses a thermally induced chain coupling and/or crosslinking of polyanilines to form a polyaniline of higher molecular weight. The process used is preferably a melt process.

In Claim 1, Applicant states: "...removing or partly removing said solvent, substantially leaving said additive therein as remaining additive, said remaining additive provides local mobility to said conjugated polymer to achieve said crystalline state thereby comprising a polycrystalline material, said polycrystalline material is characterized by a degree of crystallinity regions and a degree of amorphous regions, said degree of crystallinity regions and said degree of amorphous regions are selected by selecting the composition of said additive, and the amount of said additive;
forming a film from said admixture, said film possessing isotropic conductivity.

Attention is directed to the specification at page 12, line 18 through line 13, copies of which are attached hereto and incorporated by reference herein as Exhibit A, which provides detailed support for the excerpt of claim 1 cited above. This disclosure is the foundation for establishing that the present invention claims subject matter which is different in kind rather than degree from the prior art cited. See also Figs 6 and 11.

There is no disclosure in Han which meets each and every element of the excerpt of Claim 1 as set forth above; and, the assertion of inherency is improper.

The Examiner also rejected claims under 35 U.S.C. §102(b) as anticipated by, or in the alternative, 35 U.S.C. §103(a) as obvious over Han (US 5,171,478) in view of Cao, et al. (5,232,631)

The Examiner asserts that the cited art shows treatment of conducting polymers by plasticizers or solvents. The Examiner points to prior rejections as to the teachings found in the cited references to support his rejections. There is no teaching of isotropic electrical conductivity in these references and the materials of these references are not made in the same way as applicants' materials. There is no suggestion in these references that isotropic electrical conductivity can exist in an electrically conductive polymer or that the limitations described above in Claim 1 are either anticipated or obvious in view of the disclosures.

The Examiner, in prior rejections, commented on Example 6 pointing to where Han teaches stretch orientation and contends that Han teaches the use of a plasticizer and a solvent. The Examiner has totally ignored the rest of the limitations in Applicants' claims as rejected, for which there is no teaching or suggestions in Han. Applicants' claims distinguish over Han and Cao, et al. in that Applicants include limitations (See Claim 1 excerpt cited above as supported by Exhibit A) which are not found in Han which render the subject matter patentable.

With respect to the claims, Applicants refer to the Board's Appeal decision in this case where it stated:

"Appellants' method as set forth in claim 1 only requires the admixing of 'a solvent', 'an additive' and 'a polymer.' In Example 6, Han 'admixes' N-methyl pyrrolidinone, one of appellants' preferred 'solvents', tripropylamine, a 'plasticizer' ('additive') and an electrically conductive polyaniline, 'a polymer.' Han also teaches partial or substantial removal of the 'solvent.' Cao teaches the admixing of a polyaniline polymer with xylene, 'a solvent' and dodecylbenzene sulfonic acid, one of appellants' 'plasticizers'. Cao teaches removal of the solvent by conventional solvent removal methods."

For the sake of accuracy, Example 6 of Han states:

"Green conductive poly(anilinium tosylate) powders (5 g) was prepared as in Example 3, and was suspended in 35 mL of N-methyl pyrrolidinone. After the addition of 3.3 g of tripropylamine, the suspended poly(anilinium tosylate) powder started to dissolve forming a blue solution of low viscosity (water-like viscosity). The resulting solution mixture was then heated at 83.degrees C. for 20 minutes to form a highly viscous homogeneous blue solution. This viscous solution was further transformed into a blue solid rubber-like gel by further heating at 105.degrees C. for 20 minutes. From this gel, blue conductive polymer fibers were spun. After air-drying and redoping with 10 wt % p-toluene sulfonic acid for 20 minutes, green conductive fibers were obtained. The conductivity was about 0.15 cm⁻¹ as measured by a four-in-line probe."

In the passage quoted above, the Board refers to "N-methyl pyrrolidinone" as one of Appellants' preferred solvents and to tripropylamine as a "plasticizer". In this statement the Board was substituting the terminology used by Han, with the terminology used by Appellants. Han discloses only "plasticizers." Han refers to "tripropylamine" at col. 6, line 64 as *"Illustrative of useful plasticizing agents"* see col. 6, line 46, and further refers to "N-methyl pyrrolidinone at col. 7, line 64 as one of the *"preferred plasticizing agents."* (See col. 7, line 47). Although Applicants refer to "N-methyl pyrrolidinone" as an example of a solvent, Applicants' specification makes no mention of "tripropylamine." From the perspective of accuracy, the Board's statement above should have said that Han's example 6 teaches, (using Han's terminology), "a preferred plasticizer," e.g., N-methyl pyrrolidinone, and a plasticizer (of lesser preference), as illustrated by the compound "tripropylamine." Further, Example 6 disclosed that the poly(anilinium

tosylate) (*NOTE a different polymeric species*) is suspended – not dissolved – in the N-methyl pyrrolidinone. There is no removal of solvent in Example 6 and no example of both plasticizer and solvent, which distinguishes claim 1 from the Han disclosure.

Han has no teaching that N-methyl pyrrolidinone acts functionally different from tripropylamine. Whereas Appellants' claim defines a significant unexpected distinction between the solvent and the additive.

Applicants do not now "form an admixture from the same ingredients as those used in the prior art" obtaining the same results and thus Applicants' process is not substantially the same as the prior art, especially in view of the limitations cited above now in Claim 1..

As stated above, there is no teaching of, suggestion for or motivation for Applicants' invention as now claimed and thus there is no showing of *prima facie* obviousness. there is no rejection in the record based upon inherency, and inherency can not support an obviousness rejection, since what is inherent in a reference is not taught by the reference.

Finally, The Examiner rejected claims under 35 U.S.C. §102(b) as anticipated by or, in the alternative, under 35 U.S.C. §103(a) as obvious over Elsenbaumer (U.S. 4,983,322). This rejection is based upon the rejection of the claims by the *Board of Patent Appeals and Interferences*. Elsenbaumer as a reference, does not anticipate nor render obvious the present invention. Appellants' emphasize, as has been stated, that their invention is a method of forming an admixture of the solvent, additive and polymer which is either a precursor to an electrically conductive polymer or an electrically conductive polymer wherein the solvent is removed or partially removed and the additive provides local mobility to the polymer to allow the polymer chains to associate tightly with one another to achieve a

high crystalline state. (See excerpt of Claim 1 presented above, as supported by Exhibit A. and Figure 6.)

Elsenbaumer discloses a method of using a solution to form a conducting polymer. He discloses polyaniline in combination with an oxidizing dopant. He illustrates the useful dopants by disclosing a list of compounds, a substantial number of which are halogen-containing compounds. His preferred dopants are chlorine and bromine-containing compounds with the most preferred dopant being FeCl_3 .

Elsenbaumer uses his dopant to modify the electrical properties of the polymer. This is an inherent difference in kind as compared with the present invention. Appellants have emphasized in the specification (page 11) that the morphology of a polymer is very important in determining the polymer's physical, mechanical and electronic properties. Applicants specifically state that prior art polyaniline base films of the type disclosed by Applicants have obtained an unexpected benefit as a result of their discovery that the additive provides local mobility to the polymer to allow the polymer chains to associate tightly with one another to achieve a high crystalline state.

Applicants have provided experimental data (under oath) that clearly establishes and supports the necessary difference in kind rather than degree of the oxidant that they use as opposed to the dopant of Elsenbaumer under similar conditions. The preferred FeCl_3 species in solution of Elsenbaumer provides the Cl^- ions analogous to the HCl used by Appellants in their comparative evaluation. The enhanced crystallinity (one of the objects of the invention) enhances the electrical properties and renders the Applicants' invention an unexpected improvement.

The Examiner has rejected the claims using the Elsenbaumer reference which does not fully meet the statutory requirements for anticipation or obviousness. In order to complete the rejection he concludes the rejection with the comments :*"Also doping of the amorphous polyaniline film with aqueous hydrochloric acid (or any other dopant) would not change the morphology of solid film. Such method is different from the method taught by Elsenbaumer solution process, which would inherently yield the instant properties."*

In the statements made by the Examiner, he has *sua sponte* added information not taught in Elsenbaumer, but which is taught by applicants, i.e., the use of a solvent. In discussing the Elsenbaumer patent he has stated:

"Rejection is maintained for reason of record. The examiner repeats the following: the instant figure 5(a) is based upon polyaniline processed with NMP. There is no description whether the oxidizing dopant used in Elsenbaumer is utilized or not for said figure 5(a), and thus applicants' assertion the polyaniline film of Elsenbaumer is amorphous has no probative value. Also doping of the amorphous polyaniline film with aqueous hydrochloric acid (or with any other dopant) would not change the morphology of the solid film. Such method is different from the method taught by Elsenbaumer, solution process which would inherently yield the instant properties, and applicant failed to show otherwise."

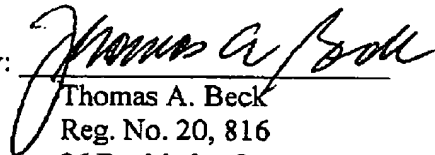
Emphasis added.

As noted above, it is improper to reject the claims as now amended in view of Elsenbaumer using an "inherency" assertion under 35 U.S.C. §103(a)

For the Examiner to properly make the assertions that he has on the record with respect to rejecting the Applicants' claims over Cao, Han, Ikkala and Elsenbaumer, he must produce specific support for his assertions as to patentability or an Affidavit as provided for under 37 C.F.R. 104(d)(2) for the Examiner to qualify himself as an expert to make these statements. See, for example the excerpt cited above in which the Examiner comments on the "morphology of the solid film."

Respectfully submitted,

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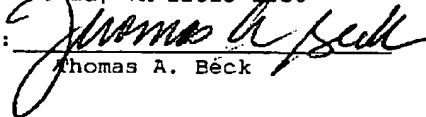
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